

We claim:

1. A plywood laminate comprising a plurality of higher grade wood plies, a plurality of lower grade wood plies and an adhesive interposed between the adjacent plies adhering the plies together, the plurality of higher grade plies having a veneer grade of better than ANSI/HPVA HP-1-2000 veneer grade C and the plurality of lower grade plies having a veneer grade of no greater than ANSI/HPVA HP-1-2000 veneer grade C.
2. The plywood laminate of claim 1, wherein the laminate comprises an even number of plies, the laminate comprising two opposed plies having an exposed major surface and at least two interior plies having no major surface exposed, the direction of the grain of adjacent plies being substantially perpendicular to each other, whereby a first plurality of plies has grain in a first direction and a second plurality of plies has grain in a second direction substantially perpendicular to the direction of the grain in the first plurality, the opposed plies being plies from the plurality of higher grade plies, and the plurality of lower grade plies including at least one interior ply from the first plurality of plies and at least one interior ply from the second plurality of plies.
3. The plywood laminate of claim 2 comprising six plies, the interior ply adjacent a first opposed ply being a ply from the plurality of lower grade plies, the next adjacent interior ply being a ply from the plurality of higher grade plies, the next adjacent interior ply being a ply from the plurality of lower grade plies, the next adjacent interior ply being a ply from the plurality of lower grade plies, and the next adjacent ply being the second opposed ply.
4. The plywood laminate of claim 3, wherein the second opposed ply has a thickness less than the thickness of the other plies.
5. The plywood laminate of claim 4, wherein the second opposed ply has a thickness approximately two-thirds of the thickness of the other substrate plies.

6. The plywood laminate of claim 2, wherein a first opposed ply has a quality less than the quality of the other plies from the plurality of higher grade plies.
7. The plywood laminate of claim 3, wherein the first opposed ply has a quality less than the quality of the other plies from the plurality of higher grade plies.
8. The plywood laminate of claim 1, wherein all of the plies are hardwoods.
9. The plywood laminate of claim 1, wherein all of the plies are of a species selected from the group consisting of meranti, lauau and combinations thereof.
10. The plywood laminate of claim 1, wherein all of the plies have a density of between about 400 kg/m³ and about 600 kg/m³.
11. The plywood laminate of claim 1, wherein all of the plies have moisture content at least 6% and no more than 8%.
12. The plywood laminate of claim 1, wherein the plywood laminate has a moisture barrier applied to exposed surfaces of the laminate, the moisture barrier having an effectiveness of at least 80%.
13. The plywood laminate of claim 12, wherein the moisture barrier has an effectiveness of at least 90%.
14. The plywood laminate of claim 1, wherein all of the plies have a grain direction of 1/48 or less.
15. The plywood laminate of claim 1, wherein the adhesive comprises a phenol-formaldehyde resin.

16. The plywood laminate of claim 1, wherein the adhesive comprises a melamine-urea-formaldehyde resin.
17. The plywood laminate of claim 1, wherein the total number of plies is selected from the group consisting of 4, 6 and 8.
18. The plywood laminate of claim 1, wherein all of the plies have a thickness of about 0.03 inches to about 0.07 inches.
19. A decorative plywood laminate comprising a decorative ply and the substrate of claim 1.
20. The decorative plywood laminate of claim 19, wherein the decorative ply is adjacent a crossband ply of the substrate, wherein a back ply distal the decorative ply has a grain direction substantially parallel to the direction of the grain of the decorative ply, at least one inner ply has a grain direction substantially parallel to the direction of the grain of the decorative ply, and a plurality of crossband plies have a grain direction substantially perpendicular to the direction of the grain of the decorative ply.
21. The decorative plywood laminate of claim 20, wherein, the at least one inner ply is a ply from the plurality of lower grade plies, the back ply is a ply from the plurality of higher grade plies and, and the plurality of crossband plies comprises a ply from the plurality of higher grade plies and a ply from the plurality of lower grade plies.
22. The decorative plywood laminate of claim 21, wherein the crossband ply adjacent the decorative ply is a ply from the plurality of higher grade plies.
23. The decorative plywood laminate of claim 20, wherein the substrate has six plies, the crossband ply adjacent the decorative ply being a ply from the plurality of higher grade plies, the next adjacent inner ply being a ply from the plurality of lower grade plies and having grain substantially parallel to the grain of the decorative ply, the next adjacent

5 crossband ply being a ply from the plurality of higher grade plies, the next adjacent inner ply being a ply from the plurality of lower grade plies and having grain substantially parallel to the grain of the decorative ply, the next adjacent crossband ply being a ply from the plurality of lower grade plies, and the next adjacent ply being the back ply, the back ply being a ply from the plurality of higher grade plies.

24. The decorative plywood laminate of claim 23, wherein the back ply has a thickness less than the thickness of the other substrate plies.

25. The decorative plywood laminate of claim 24, wherein the back ply has a thickness approximately two-thirds of the thickness of the other substrate plies.

26. The decorative plywood laminate of claim 22, wherein the crossband ply adjacent the decorative ply has a quality less than the quality of the other plies from the plurality of higher grade plies.

27. The decorative plywood laminate of claim 19, wherein all of the plies of the substrate are hardwoods.

28. The decorative plywood laminate of claim 19, wherein all of the plies of substrate are selected from the group consisting of meranti, lauau and combinations thereof.

29. The decorative plywood laminate of claim 19, wherein all of the plies of the substrate have a density of between about 400 kg/m³ and about 600 kg/m³.

30. The decorative plywood laminate of claim 19, wherein the decorative laminate has a moisture content at least 6% and no more than 8%.

31. The decorative plywood laminate of claim 19, wherein the decorative laminate has a moisture barrier applied to exposed surfaces of the decorative laminate, the moisture barrier having an effectiveness of at least 80%.

32. The decorative plywood laminate of claim 31, wherein the moisture barrier has an effectiveness of at least 90%.
33. The decorative plywood laminate of claim 19, wherein all of the plies of substrate have a grain direction of 1/48 or less.
34. The decorative plywood laminate of claim 19, wherein the adhesive comprises a phenol-formaldehyde resin.
35. The decorative plywood laminate of claim 19, wherein the adhesive comprises a melamine-urea-formaldehyde resin.
36. The decorative plywood laminate of claim 19, wherein the decorative ply is a hardwood.
37. The decorative plywood laminate of claim 36, wherein the hardwood is oak.
38. The decorative plywood laminate of claim 19, wherein the total number of plies is selected from the group consisting of 5, 7 and 9.
39. The decorative plywood laminate of claim 19, wherein all of the plies of the substrate have a thickness of about 0.03 inches to about 0.07 inches.
40. The decorative plywood laminate of claim 19, wherein the decorative laminate comprises a tongue and groove, the thickness of the tongue being greater than the thickness of any plies of the substrate.
41. The decorative plywood laminate of claim 40, wherein the tongue and groove forms a click-lock connection.

42. The decorative plywood laminate of claim 40, wherein the tongue comprises a portion of at least one ply having a higher grade.
43. The decorative plywood laminate of claim 19, wherein the decorative plywood laminate comprises a tongue and groove, the tongue having an upper surface and a lower surface spaced from the upper surface, at least one adhesive layer being interposed between the upper surface and the lower surface of the tongue.
44. The decorative plywood laminate of claim 43, wherein the tongue and groove forms a click-lock connection.
45. The decorative plywood laminate of claim 43, wherein the tongue comprises a portion of at least one ply having a higher grade.
46. A decorative plywood laminate comprising the plywood laminate of claim 1 and a decorative ply, the decorative ply comprising a polymer resin-impregnated layer and a printed pattern applied to the resin-impregnated layer.
47. A plywood laminate comprising a plurality of at least four wood plies, a first plurality of plies having a grain in a first direction and a second plurality of plies having a grain in a second direction substantially perpendicular to the direction of the grain in the first plurality, the plies having exposed major surfaces comprising plies from the first plurality of plies, the grain of the exposed plies being substantially parallel to the lengthwise edge of the ply, the wood plies comprising a plurality of higher quality plies and a plurality of lower quality plies, the exposed plies comprising plies from the plurality of higher quality plies, the ply adjacent one of the exposed plies being a lower quality ply, and the next adjacent ply being a lower quality ply.
48. The plywood laminate of claim 47, wherein the plurality of higher quality plies have a veneer grade of better than ANSI/HPVA HP-1-2000 veneer grade C and the plurality of

lower quality plies have a veneer grade of no greater than ANSI/HPVA HP-1-2000 veneer grade C.

49. The plywood laminate of claim 47, wherein the plurality of higher quality plies is formed from a hardwood and the plurality of lower quality plies are formed from plies selected from the group of a softwood and a lower quality hardwood.
50. The plywood laminate of claim 47, wherein one of the exposed plies is a decorative ply, whereby the plywood laminate is a decorative plywood laminate.
51. The decorative plywood laminate of claim 50, wherein the decorative laminate comprises a tongue and groove, the thickness of the tongue being greater than the thickness of any plies of the substrate.
52. The decorative plywood laminate of claim 51, wherein the tongue and groove forms a click-lock connection.
53. The decorative plywood laminate of claim 51, wherein the tongue comprises a portion of at least one ply having a higher quality.
54. The decorative plywood laminate of claim 50, wherein the decorative laminate comprises a tongue and groove, the tongue having an upper surface and a lower surface spaced from the upper surface, at least one adhesive layer being interposed between the upper surface and the lower surface of the tongue.
55. The decorative plywood laminate of claim 54, wherein the tongue comprises a portion of at least one ply having a higher quality.
56. A plywood laminate comprising two opposed wood plies and a plurality of interior wood plies interposed between the two opposed plies, the wood plies comprising a plurality of

5 higher quality plies and at least one lower quality ply, the laminate further comprising a tongue and groove, the tongue having an upper surface and a lower surface spaced from the upper surface, at least one adhesive layer being interposed between the upper surface and the lower surface of the tongue, the tongue comprising a portion of at least one ply having a higher quality.

57. The plywood laminate of claim 56, wherein the tongue and groove forms a click-lock connection.

58. The plywood laminate of claim 56, wherein the opposed plies are plies from the plurality of higher quality plies, the plurality of interior plies comprising at least one lower quality ply and at least one higher quality ply, the tongue comprising a portion of at least one lower quality ply and a portion of at least one higher quality ply.

59. A decorative plywood laminate comprising the plywood laminate of claim 56 and a decorative ply, the decorative ply comprising a polymer resin-impregnated layer and a printed pattern applied to the resin-impregnated layer.